

Chemical Analysis Report

SE-DIST-2019-12-20-03

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Last Minute Stuart**
Request ID: **RQ-2019-12-16-50**
Customer: **SE-DIST**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 15-JAN-2020 11:31



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Danforth Creek @ Martin Hwy

Collection Date/Time: 12/19/2019 13:00

Field ID: G2SE0018

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145956	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P376272	
	EPA 300.0 Rev. 2.1	Chloride	43		mg Cl/L	P376811	
		Sulfate	34		mg SO4/L	P376815	
	SM 2120 B-2011	Color (true)	100		PCU	P376280	
	SM 2320 B-2011	Total Alkalinity	85		mg CaCO3/L	P376448	
	SM 2540 C-2011	TDS	218		mg/L	P376548	
	SM 2540 D-2011	TSS	4	I	mg/L	P376537	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P376450	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.077		mg N/L	P376739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P376666	
2145957	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P376477	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P376439	MS
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P376455	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P376301	
2145958	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P376301	

Ref. Method and Comment:

SM 2540 C-2011: The reported result is consistent with the laboratory conductivity, 376 umhos/cm.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: South Fork SLR @ Leighton Park

Collection Date/Time: 12/19/2019 13:15

Field ID: G2SE0013

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145953	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P376272	
	EPA 300.0	Bromide	15		mg Br/L	P377010	
	SM 2320 B-2011	Total Alkalinity	132	A	mg CaCO3/L	P376449	
	SM 2540 D-2011	TSS	11		mg/L	P376538	
	SM 4500 F-C-2011	Fluoride	0.39		mg F/L	P376451	
2145954	EPA 350.1 Rev. 2.0	Ammonia-N	0.25		mg N/L	P376467	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P376584	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P376404	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P376438	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P376455	
2145955	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P376300	MS

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South Fork SLR @ Halpatiokee Trail

Collection Date/Time: 12/19/2019 13:45

Field ID: G2SE0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145947	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P376272	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P376811	
		Sulfate	13		mg SO4/L	P376815	
		Color (true)	190		PCU	P376280	
	SM 2320 B-2011	Total Alkalinity	105		mg CaCO3/L	P376377	
	SM 2540 C-2011	TDS	221		mg/L	P376548	
	SM 2540 D-2011	TSS	4	I	mg/L	P376537	
	SM 4500 F-C-2011	Fluoride	0.12		mg F/L	P376381	
2145949	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P376739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P376664	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P376477	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P376439	MS
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P376455	
2145951	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.077		mg P/L	P376299	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South Fork SLR @ Halpatiokee Trail

Collection Date/Time: 12/19/2019 13:50

Field ID: G2SE0015_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145948	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P376272	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P376811	
		Sulfate	13		mg SO4/L	P376815	
	SM 2120 B-2011	Color (true)	190		PCU	P376280	
	SM 2320 B-2011	Total Alkalinity	103	A	mg CaCO3/L	P376448	
	SM 2540 C-2011	TDS	215		mg/L	P376548	
	SM 2540 D-2011	TSS	3	I	mg/L	P376537	
	SM 4500 F-C-2011	Fluoride	0.11		mg F/L	P376450	
2145950	EPA 350.1 Rev. 2.0	Ammonia-N	0.047		mg N/L	P376739	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P376666	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P376477	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P376439	MS
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P376455	
2145952	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P376299	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376272

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P377010

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376467

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376664

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376438

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376299

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376300

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B-2011
Batch ID: P376280

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P376377

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P376448

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-2011
Batch ID: P376449

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P376548

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P376537

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P376538

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P376455

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P377010

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	110		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376300

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	100		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P376280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P376377

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-2011
Batch ID: P376448

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P376449

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-2011
Batch ID: P376455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P377010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2147390	Bromide	101	101	P/P	90 - 110
2147464	Bromide	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145829	Chloride	99.7		P	90 - 110
2145968	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145829	Sulfate	101		P	90 - 110
2145968	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145871	Ammonia-N	98.6	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145996	Ammonia-N	99.1	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145356	Kjeldahl Nitrogen	98.9	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145002	Kjeldahl Nitrogen	111	106	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145452	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145949	NO2NO3-N	96.2	95.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145871	Total-P	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145903	Total-P	111	105	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145837	O-Phosphate-P	95.7	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145874	O-Phosphate-P	97.2	113	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145994	O-Phosphate-P	95.5	94.5	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145832	Fluoride	102	102	P/P	89 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145948	Fluoride	98.4	97.8	P/P	89 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145953	Fluoride	95.6	97.0	P/P	89 - 106

Reference Method: SM 5310 B-2011
Batch ID: P376455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145834	Organic Carbon	95.8	97.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P376272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145936	Turbidity	1.99	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P377010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2147390	Bromide	0.378	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376811

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145829	Chloride	0.325	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P376815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145829	Sulfate	0.123	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145871	Ammonia-N	0.729	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P376739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145996	Ammonia-N	0.216	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145356	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145002	Kjeldahl Nitrogen	3.72	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P376666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145996	Kjeldahl Nitrogen	5.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145452	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P376477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145949	NO2NO3-N	0.371	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145871	Total-P	1.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P376439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145903	Total-P	4.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145837	O-Phosphate-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145874	O-Phosphate-P	10.1	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P376301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145994	O-Phosphate-P	0.648	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P376280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145832	Color (true)	0.455	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P376377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145832	Total Alkalinity	0.0199	Sample	P	0 - 2.8

Reference Method: SM 2320 B-2011
Batch ID: P376448

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145948	Total Alkalinity	0.0917	Sample	P	0 - 2.8

Reference Method: SM 2320 B-2011
Batch ID: P376449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145953	Total Alkalinity	0.242	Sample	P	0 - 2.8

Reference Method: SM 2540 C-2011
Batch ID: P376548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145829	TDS	1.80	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P376381

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145832	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-2011
Batch ID: P376450

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145948	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-2011
Batch ID: P376451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145953	Fluoride	0.953	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P376455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145834	Organic Carbon	0.835	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96514

Included Lab Sample IDs: 2145947, 2145948, 2145953, 2145956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A96516

Included Lab Sample IDs: 2145947, 2145948, 2145956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	102	P/P	90 - 115
Color (true)	99.6	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96528

Included Lab Sample IDs: 2145951, 2145952, 2145955, 2145958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	97.2	P/P	90 - 110
O-Phosphate-P	99.4	98.3	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A96559

Included Lab Sample IDs: 2145947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A96559

Included Lab Sample IDs: 2145947

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96568

Included Lab Sample IDs: 2145954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A96583

Included Lab Sample IDs: 2145948, 2145953, 2145956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A96583

Included Lab Sample IDs: 2145948, 2145953, 2145956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	100	P/P	90 - 110
Fluoride	99.5	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A96584

Included Lab Sample IDs: 2145949, 2145950, 2145954, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96586

Included Lab Sample IDs: 2145954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96590

Included Lab Sample IDs: 2145949, 2145950, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96642

Included Lab Sample IDs: 2145949, 2145950, 2145954, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	105	P/P	90 - 110
Total-P	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96702

Included Lab Sample IDs: 2145954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.0	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96743

Included Lab Sample IDs: 2145950, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96755

Included Lab Sample IDs: 2145949, 2145950, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96755

Included Lab Sample IDs: 2145949, 2145950, 2145957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96766

Included Lab Sample IDs: 2145949

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96770

Included Lab Sample IDs: 2145947, 2145948, 2145956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	102	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A96846

Included Lab Sample IDs: 2145953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	94.3	98.4	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	MS
			LCS	SMP	MS		
EPA 180.1 Rev. 2.0	Turbidity					1.99	
EPA 300.0	Bromide	102	101	101	99.3		0.378
EPA 300.0 Rev. 2.1	Chloride	103	99.7	99.3		0.325	
	Sulfate	103	101	100		0.123	
EPA 350.1 Rev. 2.0	Ammonia-N	96.5	98.6	100			0.729
	Ammonia-N	98.0	99.1	99.5			0.216
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.7	98.9	96.5			1.94
	Kjeldahl Nitrogen	106	111	106			3.72
	Kjeldahl Nitrogen	110					5.64
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	101			0.0
	NO2NO3-N	102	96.2	95.8			0.371
EPA 365.1 Rev. 2.0	Total-P	104	105	103			1.57
	Total-P	105	111	105			4.62
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	95.7	97.4			1.01
	O-Phosphate-P	105	97.2	113			10.1
	O-Phosphate-P	100	95.5	94.5			0.648
SM 2120 B-2011	Color (true)	99.9				0.455	
SM 2320 B-2011	Total Alkalinity	104				0.0199	
	Total Alkalinity	102				0.0917	
	Total Alkalinity	103				0.242	
SM 2540 C-2011	TDS					1.80	
SM 4500 F-C-2011	Fluoride	101	102	102			0.0
	Fluoride	96.1	98.4	97.8			0.476
	Fluoride	96.5	95.6	97.0			0.953
SM 5310 B-2011	Organic Carbon	97.6	95.8	97.4			0.835

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2145947, 2145948, 2145953, 2145956
EPA 300.0 / E31780	Bromide in aqueous matrices	2145953
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2145947, 2145948, 2145956
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2145947, 2145948, 2145956
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2145949, 2145950, 2145954, 2145957
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2145949, 2145950, 2145954, 2145957
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2145949, 2145950, 2145954, 2145957
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2145949, 2145950, 2145954, 2145957
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2145951, 2145952, 2145955, 2145958
SM 2120 B-2011 / E31780	True Color measured at 450 nm	2145947, 2145948, 2145956
SM 2320 B-2011 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2145947, 2145948, 2145953, 2145956
SM 2540 C-2011 / E31780	Total Dissolved Solids in aqueous matrices	2145947, 2145948, 2145956
SM 2540 D-2011 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2145947, 2145948, 2145953, 2145956
SM 4500 F-C-2011 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2145947, 2145948, 2145953, 2145956
SM 5310 B-2011 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2145949, 2145950, 2145954, 2145957

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	12/20/2019			12/20/2019 15:03	Yen Ta	2145947, 2145948, 2145953, 2145956
EPA 300.0	12/20/2019			01/14/2020 02:16	Lipi Saha	2145953
EPA 300.0 Rev. 2.1	12/20/2019			01/08/2020 09:34	Jhamieka S. Greenwood	2145947
	12/20/2019			01/08/2020 09:46	Jhamieka S. Greenwood	2145948
	12/20/2019			01/08/2020 09:58	Jhamieka S. Greenwood	2145956
EPA 350.1 Rev. 2.0	12/20/2019			01/07/2020 12:43	Ping Hua	2145949
	12/20/2019			01/07/2020 12:44	Ping Hua	2145950
	12/20/2019			01/07/2020 12:46	Ping Hua	2145957
	12/20/2019			12/26/2019 18:38	Ping Hua	2145954
EPA 351.2 Rev. 2.0	12/20/2019	01/02/2020 13:10	Sima Feizi	01/03/2020 15:24	Virginia P. Brown	2145954
	12/20/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/07/2020 14:27	Virginia P. Brown	2145950
	12/20/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/07/2020 14:29	Virginia P. Brown	2145957
	12/20/2019	01/06/2020 17:22	Jhamieka S. Greenwood	01/08/2020 14:26	Virginia P. Brown	2145949
EPA 353.2 Rev. 2.0	12/20/2019			12/26/2019 12:03	Beverly Y. Sanders	2145954
	12/20/2019			12/27/2019 11:44	Beverly Y. Sanders	2145949
	12/20/2019			12/27/2019 11:53	Beverly Y. Sanders	2145950
	12/20/2019			12/27/2019 11:54	Beverly Y. Sanders	2145957
EPA 365.1 Rev. 2.0	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 12:53	Benjamin T. Nordmann	2145954
	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 13:05	Benjamin T. Nordmann	2145949
	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 13:06	Benjamin T. Nordmann	2145950
	12/20/2019	12/26/2019 15:49	Yen Ta	12/30/2019 13:07	Benjamin T. Nordmann	2145957
EPA 365.1 Rev. 2.0 dissolved	12/20/2019			12/20/2019 16:31	Virginia P. Brown	2145955
	12/20/2019			12/20/2019 16:32	Virginia P. Brown	2145958
	12/20/2019			12/20/2019 16:46	Virginia P. Brown	2145951
	12/20/2019			12/20/2019 16:47	Virginia P. Brown	2145952
SM 2120 B-2011	12/20/2019			12/20/2019 16:09	Madeline Funaro	2145956
	12/20/2019			12/20/2019 16:34	Madeline Funaro	2145947
	12/20/2019			12/20/2019 16:35	Madeline Funaro	2145948
SM 2320 B-2011	12/20/2019			12/25/2019 00:04	Dale L. Simmons	2145947
	12/20/2019			12/26/2019 19:03	Dale L. Simmons	2145948
	12/20/2019			12/26/2019 20:39	Dale L. Simmons	2145956
	12/20/2019			12/27/2019 00:03	Dale L. Simmons	2145953
SM 2540 C-2011	12/20/2019			12/23/2019 16:45	Yijie Li	2145947, 2145948, 2145956
SM 2540 D-2011	12/20/2019			12/23/2019 16:45	Yijie Li	2145947, 2145948, 2145953, 2145956
SM 4500 F-C-2011	12/20/2019			12/25/2019 00:04	Dale L. Simmons	2145947
	12/20/2019			12/26/2019 18:53	Dale L. Simmons	2145948
	12/20/2019			12/26/2019 20:39	Dale L. Simmons	2145956
	12/20/2019			12/26/2019 21:40	Dale L. Simmons	2145953
SM 5310 B-2011	12/20/2019			12/27/2019 03:49	Madeline Funaro	2145949
	12/20/2019			12/27/2019 04:04	Madeline Funaro	2145950

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	12/20/2019			12/27/2019 04:17	Madeline Funaro	2145954
	12/20/2019			12/27/2019 04:30	Madeline Funaro	2145957